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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/705,316	11/03/2000	David R. Battiste	33938US	7718

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EXAMINER	
DANG, THUAN D	
ART UNIT	PAPER NUMBER
1764	

DATE MAILED: 05/18/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/705,316	BATTISTE, DAVID R.	
	Examiner	Art Unit	
	Thuan D. Dang	1764	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *09 March 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 17 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

"in both gas phase" in claim 17 cannot be interpreted.

The limitation of claim 19 cannot be understood since there is no a connection between claim 13 and 19.

Regarding second step (c) of claim 13 and 15, which is considered to be "at least one oligomerization condition"

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-4, 10, 13 are rejected under 35 U.S.C. 102(b) as being anticipated by Pinole et al (3,682,823).

Pinole discloses a process of oligomerization of alpha-olefins in the presence of a catalyst (the abstract).

On the paragraph bridging columns 3 and 4, Pinole clearly disclose that Raman spectroscopy is used to detect the residual unsaturation.

Regarding claims 3, 4, and 10, Pinole also disclose that according to the result of the Raman spectroscopy, the oligomerization process is adjusted by one oligomerization condition - hydrogenating these residual unsaturations in the oligomerization product (col. 4, lines 5-15).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 14-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pinole (3,682,823).

Pinole discloses a process as discussed above.

It appears that Pinole does not disclose that (1) the measurement is obtained before or within or after the reaction zone, (2) measuring different concentration, (3) comparing these measurements and adjusting, accordingly, (3) determining the measurement by calibration model using partial least squares analysis, (4) a low resolution Raman equipment of 15 to 30 wave numbers.

However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Pinole process by measuring the concentration at appropriate locations such as the end of catalyst bed or outlet by different samples for accuracy. Clearly, these measurements must be compared with a sample data for adjusting accordingly.

Also, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified Pinole process by using appropriate calculation method such as calibration partial least squares analysis provided that these methods yield accurate results.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Pinole process by using low resolution Raman equipment since using any equipment would yield similar results.

Claims 5-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pinole (3,682,823) in view of Schmucker et al (6,115,528).

Pinole discloses a process as discussed above.

Pinole does not disclose the Raman equipment in detail, especially including the optic probe comprising fused silica fiber cables within a protective metal sheath (see the entire patent for details). However, Schmucker disclose these things (the abstract; col. 2, lines 5-10). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Pinole process by using parts disclosed by Schmucker to protect the equipment from the hostile environment (the abstract; col. 1, lines 5-10).

Claims 9, 11, and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Pinole (3,682,823) in view of Tanaka et al (5,750,817).

Pinole discloses a process as discussed above.

Pinole does not disclose that the oligomerization reactants comprises hydrogen, (2) monomer is ethylene, and (3) the process is performed in more than one reactor.

However, Tanaka operates an oligomerization of olefins such as ethylene, hexene, or octane in the presence of hydrogen in a series of reactors (col. 11, line 21 thru col. 12, line 47).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Pinole process by cofeeding hydrogen to enhance the catalyst (col. 11, lines 63-65).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Pinole process for trimerizing ethylene to produce hexene, if desired, since as disclosed by Tanaka ethylene and hexene can be used as monomer. Further, these olefins are homologs it has been established that closely relate homologs, analogs and isomers in chemistry may create a prima facie case of obviousness. *In re Dillon* 16 USPQ 2d

1897, 1904 (Fed. Cir. 1990); *In re Payne* 203 USPQ 245 (CCPA 1979); I*n re Mills* 126 USPQ 513 (CCPA 1960); In *re Henze* 85 USPQ 261 (CCPA 1950); *In re Haas* 60 USPQ 544 (CCPA 1944).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Pinole process by operating the process in a series of reactors as disclosed by Tanaka since it has been established that the transposition of process steps or the splitting of one step into two, where the processes are substantially identical or equivalent in terms of function, manner and result was held to be not patentably distinguish the processes. *Ex parte Rubin* 128 159 (PO BdPatApp 1959).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to have modified the Pinole process having been modified by Tanaka's teachings by monitoring the concentration of the effluent of each reactor and adjusting the process by appropriate parameter such as providing monomer to the effluent of the preceding reactors.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thuan D. Dang whose telephone number is 571-272-1445. The examiner can normally be reached on Mon-Thu.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thuan D. Dang
Primary Examiner
Art Unit 1764

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May 14, 2004